

TRANSMISSION AND DISTRIBUTION EFFICIENCY IMPROVEMENT

A utility should plan and conduct a comprehensive study evaluating options for improving transmission and distribution system efficiency. Based on the findings of that study, it should then implement a program to bring its T&D system to the level of electrical efficiency that is optimal on a present value of life cycle societal cost basis within a reasonable period of time. These studies and action plans should be reviewed and updated at reasonable intervals. Finally, each utility should implement a program, as part of its IRP, to maintain T&D efficiency improvements on an ongoing basis.

T&D System Evaluation

Each utility should evaluate individual T&D circuits to identify the optimum economic and engineering configuration for each circuit. Reliability and safety criteria should be reflected as applicable. The filed IRP should contain a written plan describing how and when the utility will carry out these evaluations

Decisions regarding some facilities may affect more than one utility. In such instances, utilities should work together so that their evaluations reflect not only their individual interests, but also the interests of ratepayers generally.

The standard for establishing optimum T&D system configurations and for selecting transmission and distribution equipment is the net present value of life cycle societal cost. This requires consideration of a project's capital costs and life cycle operating costs, as well as benefits resulting from the construction of enhanced system configurations and the installation of energy efficient T&D components. These benefits include avoided operation and maintenance costs, and avoided energy and capacity costs. Avoided energy costs include the direct costs for energy, the costs for energy consumed as line losses, T&D delivery costs, and environmental externalities. Avoided capacity costs include fixed costs and capacity charges for power including on peak line losses, fixed costs and capacity charges for T&D, the cost of Capability Responsibility reserve obligations, the deferral of T&D investments, and environmental externalities.

- ▶ Evaluations should identify and compare all technically feasible investments to improve system efficiency. At a minimum, evaluations should assess the economics and technical feasibility of the following measures:
- ▶ Strategic placement and control of reactive power devices;
- ▶ Distribution circuit reconfiguration;
- ▶ Installation of distribution automation to control reactive power, feeder configuration, phase balancing, and peak loads;
- ▶ Re-conducting lines to larger-sized conductors;
- ▶ Replacement of conventional silicon steel core transformers with high efficiency silicon steel transformers or amorphous metal core transformers;
- ▶ Conservation voltage regulation;
- ▶ Increasing distribution system voltage levels;
- ▶ Implementation of a distribution transformer load management (DTLM) program (See Equipment Selection and Utilization Standards below);